Barriers for Outdoor Swimming Pools, Spas, & Hot Tubs

Intent Of the Law:

Over 4,600 yearly drownings have occurred in residential pools. Drowning is the second leading cause of death for children under age 5. A barrier is the best way to reduce loss of life.

Requirements for Barriers Below Ground Pools:

Top of the barrier shall measure a minimum of 48" above grade measured on the side of the barrier which faces away from the pool. The maximum vertical clearance between the grade and the bottom of the barrier shall be 2 inches measured on the side which away of the pool. This may be increased the 4 inches when grade is a solid surface, i.e., a concrete deck. Any elements which make the barrier easy to climb are prohibited. Openings in barriers shall not allow passage of a 1-3/4 inch diameter sphere.

EXCEPTIONS:

1. When vertical spacing between such openings is 45 inches or more, the opening size may be increased such that the passage of a 4 inch diameter sphere is not allowed.
2. For fencing composed of vertical & horizontal members, the spacing between vertical member may be increased up to 4 inches when the distance between the tops if horizontal member s are 45 inches or more.
3. Chain link fences used as the barrier shall not be less than 11 gage. Access gates shall comply with the above requirements.
4. Pedestrian access gates shall be self-closing & have self-latching devices. Where the release mechanism of the self-device is located on the pool side of the barrier at least 3 inches below the top of the gate, & (B) the gate & barrier shall have no openings greater than ½-inch within 18 inches of the release mechanism. Pedestrian gates shall swing away from the pool. Any gate other than pedestrian access gates shall be equipped with lockable hardware or padlocks & remain locked at all times when not in use.

Requirements for Above Ground Pools, Hot Tubs, or Spas

When an above ground pool structure is used or where the barrier is mounted on top of the pool structure and the means of access is a ladder or steps, then (A) the ladder or steps shall be capable of being secured, locked, or removed to prevent access or (B) they shall be surrounded by a barrier which meets the requirements above. When the ladder or steps are secured, locked, or removed, any opening created shall be protected by a barrier complying with requirements above.

Requirements for Dwelling Where a Wall is a Barrier

Where a wall of a dwelling unit serves as part of the barrier & contains door openings between the dwelling unit & the outdoor swimming pool, which provides direct access to the pool, a separation fence meeting the above requirements shall apply.

EXCEPTIONS: When approved by the building official, one of the following may be used:

1. Self-closing & self-latching devices installed on all doors with the release mechanism located a min. of 54-inches above the floor.
2. An alarm installed on all doors with direct access to the pool. The alarm shall sound continuously for a min. of 30 seconds when the door is opened. The alarm shall reset automatically. The alarm shall have a 15 second max. manual override for access and located 54 inches above the door threshold.
3. Alarm systems may be battery operated or connected to house wiring. (HCD SHL 93-05)

Pools and Spas Heating Systems and Equipment s114

Before installation of a heating system, a manufacturer must certify that the system or equipment complies with S114. That section specifies a min. heating efficiency, an on-off switch, operating instructions, no pilot light and no electric resistance heating, with two exceptions. Electric resistance heating may be installed for:

1. Listed package units with fully insulated enclosures, and with tight-fitting covers that are insulated to at least R-6.
2. Pool or spas deriving least 60 percent of the annual heating energy from site solar energy or recovery energy.

Any pool or spa equipment must be installed with all of the following:

- At least 36" of pipe between the filter and heater, to allow for the future addition of the solar heating equipment.
- A Cover for outdoor pools or outdoor spas except for pools or spas deriving at least 60 percent pf the annual heating energy from site solar energy or recovered energy
- If the heating system or equipment is for a pool:

    a. *The pool must have directional inlets that adequately mix pool water*

    b. *The circulation pump must have a time switch that allows the pump to be set to run in off-peak electric demand periods, and for the minimum time necessary to maintained the water in the condition required by applicable public health standard, except where applicable public health standard require on peak operations.*

Electrical Installation Around Water Have Special Requirements, for example: ground-fault circuit-interrupter, location of receptacles,

switches & lighting fixtures, wet-niche & dry-niche fixtures, heater location, as well as other concerns.

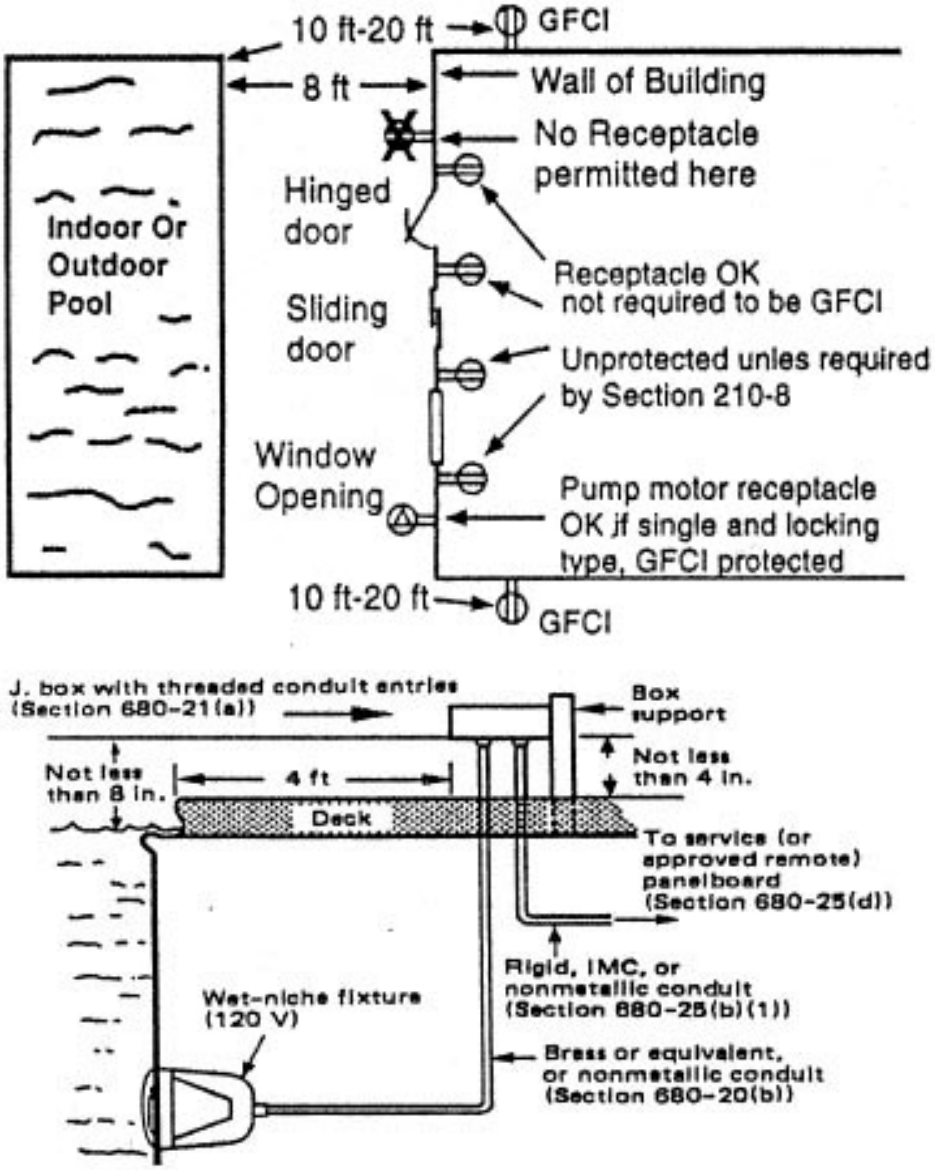


Figure 680-1. Wet-niche fixture installation with J-box supported in accordance with Sections 370-23(d) and 347-3(b) above pool deck.

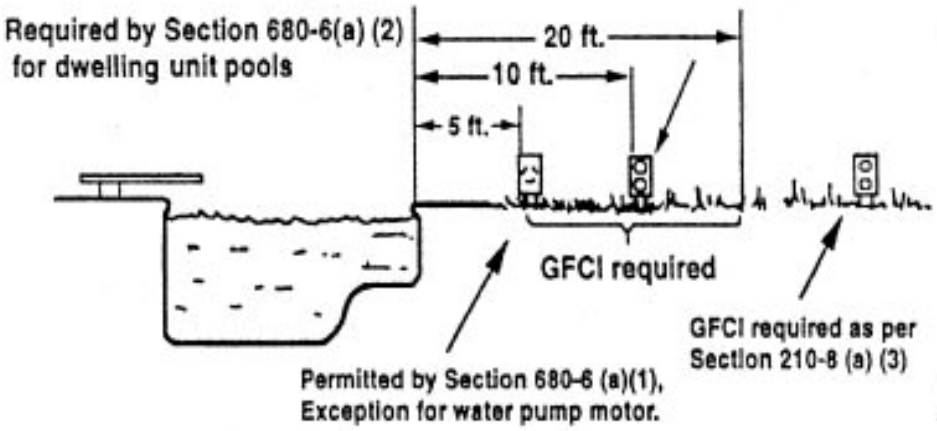
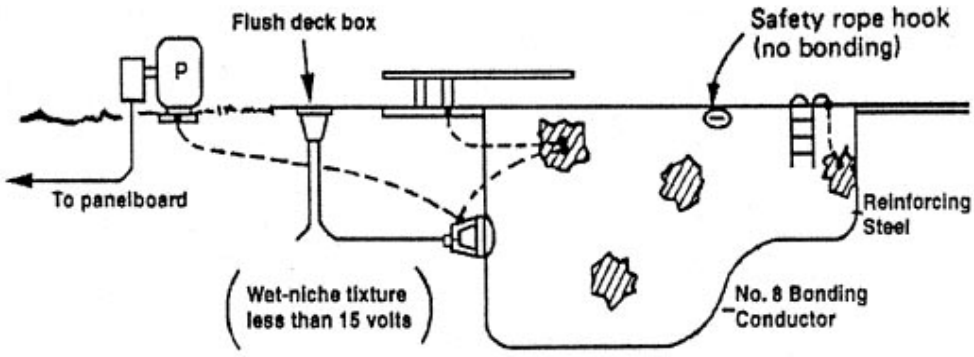


Figure 680-2. For Permanently installed pools at dwelling unit(s), it is mandatory to install a 125-V receptacle between 10 and 20 feet from the inside wall of the pool.



Notes:

Note 1: The following parts cannot be put under any existing service-drop conductors or over-head wiring; and such cannot be installed above: 1-pool and the area that extends 10 ft. horizontally from the inside of the pool wall: 2-diving structures; 3-observation stands; platforms, or towers.

Note 2: Utility-owned operated and maintained communication conductors, community antenna system coaxial cables complying with NEC Article 820 and their supporting messengers are permitted to be installed at a height of at a least 10 ft or more above swimming and wading pools, diving structures and observation stands, towers or platforms.

Note 3: For additional clearances for conductors not covered here see NEC Section 225-18 and 225-19. Codes:

- 1997 UBC Appendix 4, Pool covers shall meet ASTM standards F1346-91
- 1999 NEC Article 680, Electrical installations for pool, spas, & hot tubs